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EXAMINER	
ROMAN, LUIS ENRIQUE	
ART UNIT	**PAPER NUMBER**
2836	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/607,749	DONALDSON ET AL.
	Examiner	Art Unit
	Luis Roman	2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/27/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 3, 7, 8, 9, 13, 14, 15 & 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nebrigic et al. (US 6370046) in view of Baumgartner et al. (US 5142435).

Regarding to claim 1 Nebrigic et al. discloses a protection circuit comprising: a control circuit (Fig. 3 element 50) for controlling switching of at least one switch (Fig. 3 element 48) of a floating power transfer device, the at least one switch controlling charging of a reservoir capacitor of the floating power transfer device across which a load is applied when in use (Figs. 3 & 4 element C_L); a fault detection circuit for detecting a fault in at least one of the floating power transfer device or the load, and for sending a fault detect signal to the control circuit responsive thereto (col. 11 lines 48-57 & Fig. 3 elements 50, 56).
Nebrigic et al. does not disclose a pre-charge driver circuit for pre-charging the reservoir capacitor, the pre-charge driver circuit being enabled by the control circuit responsive to receipt of the fault detect signal from the fault detection circuit, wherein when enabled, the pre-charge driver circuit attempts to pre-charge the reservoir capacitor to a voltage level sufficient for switching of the at least one switch to proceed without damaging the at least one switch.
Baumgartner et al. teaches a pre-charge driver circuit for pre-charging the reservoir capacitor (Fig. 1 element 125), the pre-charge driver circuit being enabled by the control circuit (Fig. 1 element 140) responsive to receipt of the fault detect signal from the fault detection circuit, wherein when enabled, the pre-charge driver circuit attempts to pre-charge the reservoir capacitor (Fig. 1 element 125) to a voltage level sufficient for switching of the at least one switch (Fig.1 element 191) to proceed without damaging the at least one switch.
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the pre-charge apparatus of Baumgartner et al. to solve the problem of reconnecting the power supply to the bus line which draws a surge from the power supply to the capacitor, due to the low impedance of both a power supply for example a battery and a large capacitor with no charge in it. Thus, only the incidental impedances that may exist in the circuit limit the initial current flow.

As a result of protecting the power transfer device with the pre-charge circuit, the problems caused by a surge that goes through the electrical components is diminished.

Regarding to claim 2 Nebrigic et al. discloses the protection circuit of claim 1. Nebrigic et al. further discloses wherein the fault detection circuit resides in a floating portion of the floating power transfer device and the control circuit resides in a ground referenced portion of the floating power transfer device (col. 11 lines 48-54 & Fig. 3 element 56, this is the feedback or fault signal to the controller to further operate the switches), and wherein the protection circuit further comprises a float level shift circuit for shifting the fault detect signal from the floating portion of the floating power transfer device to the ground referenced portion for forwarding to the control circuit (col. 34 lines 2-5).

Regarding to claim 3 Nebrigic et al. discloses the protection circuit of claim 1. Nebrigic et al. further discloses wherein the fault detection circuit further comprises circuitry (Fig. 3 element 50) for directly or indirectly monitoring when voltage across the reservoir capacitor (Fig. 3 element C_L) of the floating power transfer device falls below a fault threshold, and for sending the fault detect signal to the control circuit responsive thereto (col. 11 lines 45-63).

Regarding to claim 7 Nebrigic et al. discloses a device comprising: a reservoir capacitor across which a load is applied when in use (Fig. 3 elements 14 & C_L); a power supply voltage (Fig. 3 element 12) for charging the reservoir capacitor; at least one switch (Fig. 3 element 48) coupled between the power supply voltage and the reservoir capacitor to selectively connect and disconnect the power supply voltage from the reservoir capacitor; and a protection circuit for the at least one switch, the protection circuit including: a control circuit (Fig. 3 element 50) for controlling switching of the at least one switch of the device, fault detection circuit for detecting (Fig. 3 element 56) a fault in at least one a of the device or the load, and for sending a fault detect signal to the control circuit responsive thereto.
Nebrigic et al. does not disclose a pre-charge driver circuit for pre-charging the reservoir capacitor, the pre-charge driver circuit being enabled by the control circuit responsive to receipt of the fault detect signal from the fault detection circuit, and wherein when enabled, the pre-charge driver circuit attempts to pre-charge the reservoir capacitor to a voltage level sufficient for switching of the at least one switch to proceed without damaging the at least one switch.
Baumgartner et al. teaches a pre-charge driver circuit being enabled by the control circuit (Fig. 1 element 140) responsive to receipt of the fault detect signal from the fault detection circuit (Fig. 1 element 145), and wherein when enabled, the pre-charge driver circuit attempts to pre-charge the reservoir capacitor (Fig. 1 element 125) to a voltage level sufficient for switching of the at least one switch (Fig.1 element 191) to proceed without damaging the at least one switch.
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the pre-charge apparatus of

Baumgartner et al. to solve the problem of reconnecting the power supply to the bus line which draws a surge from the power supply to the capacitor, due to the low impedance of both a power supply for example a battery and a large capacitor with no charge in it. Thus, only the incidental impedances that may exist in the circuit limit the initial current flow.
As a result of protecting the power transfer device with the pre-charge circuit, the problems caused by big surge that goes through the electrical components is diminished.

Regarding to claim 8 Nebrigic et al. discloses the protection circuit of claim 7. Nebrigic et al. further discloses wherein the fault detection circuit resides in a floating portion of the floating power transfer device and the control circuit resides in a ground referenced portion of the floating power transfer device (col. 11 lines 48-54 & Fig. 3 element 56, this is the feedback or fault signal to the controller to further operate the switches), and wherein the protection circuit further comprises a float level shift circuit for shifting the fault detect signal from the floating portion of the floating power transfer device to the ground referenced portion for forwarding to the control circuit (col. 34 lines 2-5).

Regarding to claim 9 Nebrigic et al. discloses the protection circuit of claim 7. Nebrigic et al. further discloses wherein the fault detection circuit further comprises circuitry (Fig. 3 element 50) for directly or indirectly monitoring when voltage across the reservoir capacitor (Fig. 3 element C_L) of the floating power transfer device falls below a fault threshold, and for sending the fault detect signal to the control circuit responsive thereto (col. 11 lines 45-63).

Regarding to claim 13 Nebrigic et al. discloses a method comprising: controlling switching of at least one switch (Fig. 3 element 50), the at least one switch controlling charging of a reservoir capacitor (Fig. 3 elements 48 & C_L) of a floating power transfer device across which a load is applied when in use (Fig 3 element 14); monitoring at least one of the floating power device and the load for detecting a fault (Fig. 3 elements 50 & 56), and upon detecting a fault, generating a fault detect signal (Fig. 3 elements S_1, S_2, S_3,...S_N).
Nebrigic et al. does not disclose the circuit being responsive to generating of the fault detect signal, attempting to pre-charge the reservoir capacitor to a voltage level sufficient for switching of t he at least one switch to proceed without damaging the at least one switch.
Baumgartner et al. teaches the circuit being responsive to generating of the fault detect signal (Fig. 1 element 145), attempting to pre-charge the reservoir capacitor (Fig. 1 element 125) to a voltage level sufficient for switching of the at least one switch (Fig.1 element 191) to proceed without damaging the at least one switch.
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the pre-charge apparatus of Baumgartner et al. to solve the problem that represents of reconnecting the power

supply to the bus line which draws a surge from the power supply to the capacitor, due to the low impedance of both a power supply, for example, a battery and a large capacitor with no charge in it. Thus, only the incidental impedances that may exist in the circuit limit the initial current flow.
As a result of protecting the power transfer device with the pre-charge circuit, the problems caused a big surge that goes through the electrical components is diminished.

Regarding to claim 19 Nebrigic et al. discloses a circuit comprising: means for controlling switching of at least one switch (Fig. 3 element 50), the at least one switch controlling charging of a reservoir capacitor (Fig. 3 element C_L) of a floating power transfer device across which a load is applied when in use (Fig. 3 element 14); means for monitoring at least one of the floating power device and the load for detecting a fault, (Fig. 3 element 50 & 56) and upon detecting a fault, for generating a fault detect signal (Fig. 3 elements S_1, S_2, S_3,...S_N).
Nebrigic et al. does not disclose the control circuit with a means for attempting, responsive to generating of the fault detect signal, to pre-charge the reservoir capacitor to a voltage level sufficient for switching of the at least one switch to proceed without damaging the at least one switch.
Baumgartner et al. teaches the circuit with a means for attempting, responsive to generating of the fault detect signal (Fig. 1 element 145), to pre-charge the reservoir capacitor (Fig. 1 element 125) to a voltage level sufficient for switching of the at least one switch (Fig.1 element 191) to proceed without damaging the at least one switch.
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the pre-charge apparatus of Baumgartner et al. to solve the problem of reconnecting the power supply to the bus line which draws a surge from the power supply to the capacitor, due to the low impedance of both a power supply for example a battery and a large capacitor with no charge in it. Thus, only the incidental impedances that may exist in the circuit limit the initial current flow.
As a result of protecting the power transfer device with the pre-charge circuit, the problems caused by big surge that goes through the electrical components is diminished.

Claims 4, 5, 10, 11, 16 & 17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nebrigic et al. (US 6370046) in view of Hawkes (US 5808883).

Regarding to claim 4 Nebrigic et al. discloses the protection circuit of claim 1.
Nebrigic et al. further discloses the power supply charging the reservoir capacitor of the floating power transfer device when the at least one switch is turned on (col. 8 lines 56-62).
Nebrigic et al. does not disclose wherein the floating power transfer device further comprises a power supply having a voltage level in a range of 5 to 20 volts.
Hawkes teaches wherein the floating power transfer device further comprises a power supply having a voltage level in a range of 5 to 20 volts (col. 3 lines 59-61).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the power source of Hawkes since voltages in this range can be easily regulated to the known required voltages for computer devices and systems.

Regarding to claim 5 Nebrigic et al. in view of Hawkes discloses the protection circuit of claim 4.
Nebrigic et al. further discloses wherein the at least one switch comprises two switches operated in tandem for cyclically applying the power supply voltage across the reservoir capacitor to charge the capacitor (col. 8 lines 63-67 & col. 9 lines 1-32).

Regarding to claim 10 Nebrigic et al. discloses the protection circuit of claim 7.
Nebrigic et al. further discloses the power supply charging the reservoir capacitor of the floating power transfer device when the at least one switch is turned on (col. 8 lines 56-62).
Nebrigic et al. does not disclose wherein the floating power transfer device further comprises a power supply having a voltage level in a range of 5 to 20 volts.
Hawkes teaches wherein the floating power transfer device further comprises a power supply having a voltage level in a range of 5 to 20 volts (col. 3 lines 59-61).
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the power source of Hawkes since voltages in this range can be easily regulated to the known required voltages for computer devices and systems.

Regarding to claim 11 Nebrigic et al. in view of Hawkes discloses the protection circuit of claim 10.
Nebrigic et al. further discloses wherein the at least one switch comprises two switches operated in tandem for cyclically applying the power supply voltage across the reservoir capacitor to charge the capacitor (col. 8 lines 63-67 & col. 9 lines 1-32).

Regarding to claim 16 Nebrigic et al. discloses the method of claim 13.
Nebrigic et al. further discloses wherein charging of the reservoir capacitor of the floating power transfer device is from a power supply, wherein the power supply charges the reservoir capacitor of the floating power transfer device when the at least one switch is turned on. (col. 8 lines 56-62).
Nebrigic et al. does not disclose the power supply having voltage level in a range of 5 to 20 volts.
Hawkes teaches the power supply having voltage level in a range of 5 to 20 volts (col. 3 lines 59-61).
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the power source of Hawkes since voltages in this range can be easily regulated to the known required voltages for computer devices and systems.

Regarding to claim 17 Nebrigic et al. in view of Hawkes discloses the protection circuit of claim 16.
Nebrigic et al. further discloses wherein the at least one switch comprises two switches operated in tandem for cyclically applying the power supply voltage across the reservoir capacitor to charge the capacitor (col. 8 lines 63-67 & col. 9 lines 1-32).

Claims 6, 12 & 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Nebrigic et al. (US 6370046) in view of Baba (US 6335577).

Regarding to claim 6 Nebrigic et al. discloses the protection circuit of claim 1.
Nebrigic et al. does not disclose that the circuit comprising a temperature sensor for detecting when temperature of the at least one switch rises above a set temperature level, and for sending an over temperature signal to the control circuit responsive thereto, and wherein the control circuit further comprises means for temporarily shutting down the floating power transfer device and subsequently reinitiating a startup procedure responsive to receipt of the over temperature signal.
Baba teaches a circuit comprising a temperature sensor for detecting when temperature of the at least one switch rises above a set temperature level, and for sending an over temperature signal to the control circuit responsive thereto, and wherein the control circuit further comprises means for temporarily shutting down the floating power transfer device and subsequently reinitiating a startup procedure responsive to receipt of the over temperature signal (abstract).
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the temperature protection of Baba this circuit provides protection suppressing heat loss and a quick response is enabled against an abnormal current. Another advantage is that it can be easily integrated and is economical.

Regarding to claim 12 Nebrigic et al. discloses the protection circuit of claim 7.
Nebrigic et al. does not disclose that the circuit comprising a temperature sensor for detecting when temperature of the at least one switch rises above a set temperature level, and for sending an over temperature signal to the control circuit responsive thereto, and wherein the control circuit further comprises means for temporarily shutting down the floating power transfer device and subsequently reinitiating a startup procedure responsive to receipt of the over temperature signal.
Baba teaches a circuit comprising a temperature sensor for detecting when temperature of the at least one switch rises above a set temperature level, and for sending an over temperature signal to the control circuit responsive thereto, and wherein the control circuit further comprises means for temporarily shutting down the floating power transfer device and subsequently reinitiating a startup procedure responsive to receipt of the over temperature signal (abstract).
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the temperature protection of Baba this circuit provides protection suppressing heat loss and a quick response is

enabled against an abnormal current. Another advantage is that it can be easily integrated and because is economical.

Regarding to claim 18 Nebrigic et al. discloses the method of claim 13.
Nebrigic et al. does not disclose the circuit further comprising monitoring temperature of the at least one switch, and generating an over temperature signal when the temperature of the at least one switch rises above a set temperature level, and wherein the method further comprises temporarily shutting down the floating power transfer device and subsequently reinitiating a startup procedure responsive to generating of the over temperature signal.
Baba teaches a circuit further comprising monitoring temperature of the at least one switch, and generating an over temperature signal when the temperature of the at least one switch rises above a set temperature level, and wherein the method further comprises temporarily shutting down the floating power transfer device and subsequently reinitiating a startup procedure responsive to generating of the over temperature signal (abstract).
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Nebrigic et al. device with the temperature protection of Baba this circuit provides protection suppressing heat loss and a quick response is enabled against an abnormal current. Another advantage is that it can be easily integrated and is economical.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luis E. Román whose telephone number is (571) 272 – 5527. The examiner can normally be reached on Mon – Fri from 7:15 AM to 3:45 PM.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x 36. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
Information regarding the status of an application may be obtained from Patent Application Information Retrieval (PAIR) system.
Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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